

 Independent Verification & Validation Facility	Project Startup	IVV 09-8 Revision: D Effective Date: August 12, 2005
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APPROVAL SIGNATURES		DATE
Gregory Blaney (original signature on file)	Management System Representative	08/12/2005

REVISION HISTORY			
Rev. No.	Description of Change	Author	Effective Date
Basic	Initial Release	John Marinaro	09/12/2002
A	Change process owner to Christina Moats and remove bullet referring to "allow approx. 55k dollars for contractor costs"	Christina Moats	09/24/2003
B	Added SAR peer review process, additional definitions, records in section 8, and other minor corrections.	Steve Pukansky, Stephanie Ferguson	05/07/2004
C	Added metrics references in section 8 to address PAR#13775, added Website curator to definitions section 3, and other minor grammatical corrections.	Frank Huy, Christina Moats	10/04/2004
D	Updated for organizational changes.	Christina Moats	08/12/2005

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REFERENCE DOCUMENTS	
Document Number	Document Title
Current versions posted by NASA	Federal Acquisition Regulations (FARs) and Supplements
NPD 7120.5C	NASA Policy Directive for Program/Project Management
NPR 1441.1	NASA Records Retention Schedule
IVV QM	Independent Verification & Validation Quality Manual
IVV 09-1	Independent Verification and Validation System Level Procedure
IVV 14	Corrective and Preventative Action System Level Procedure
IVV 16	Control of Quality Records System Level Procedure
IV&V Form 1007	CONCURRENCE SHEET

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1.0 Purpose

The purpose of this system level procedure (SLP) is to establish a consistent and documented method of performing the project startup process at the NASA IV&V Facility.

2.0 Scope

This SLP applies to all NASA IV&V Facility personnel who perform project startup activities for IV&V tasks for the NASA IV&V Facility.

3.0 Definitions and Acronyms

This section defines those words, phrases, terms, and acronyms that apply specifically to this SLP.

3.1 Contractor

A Contractor is any individual or entity that enters into a legal contract to perform an activity or service for the NASA IV&V Facility.

3.2 Customer Project

A Customer Project is a project that is the recipient of IV&V Services as defined in a Formal Agreement.

3.3 Deputy IV&V Services Lead

The Deputy IV&V Services Lead is a NASA IV&V Facility civil service employee appointed by the IV&V Services Lead. The Deputy IV&V Services Lead is responsible for ensuring consistent, effective, and efficient project management amongst various IV&V projects. The Deputy IV&V Services Lead will work with the PMs assigned to those projects to help resolve technical and performance issues related to management of the project.

3.4 Formal Agreement (FA)

An FA is a document used to identify the managerial, technical, and business aspects of an agreement between the NASA IV&V Facility and a customer to perform an IV&V task.

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3.5 Independent Verification and Validation (IV&V):

IV&V is a core process function performed by the NASA IV&V Facility. See IVV 09-1, Independent Verification and Validation, for more explanation and detail.

3.6 IV&V Board of Directors (IBD)

The NASA IV&V Facility is funded through the NASA General and Administrative (G&A) budget. The IBD is chaired by the Office of Safety and Mission Assurance (OSMA) and is comprised of representatives from each Mission Directorate Associate Administrator (AA), the NASA Chief Information Officer (CIO), the NASA Chief Engineer, the Director of Goddard Space Flight Center (GSFC), and the NASA IV&V Facility. The IBD is responsible for identifying customer projects that will receive G&A-funded IV&V.

3.7 IV&V Form #1007 (Concurrence Form)

The Concurrence Form is a form used to capture concurrence by Facility Management or a PM that a product has been reviewed and is acceptable for distribution.

3.8 IV&V Criteria Self Assessment

The IV&V Criteria Assessment Tool is a tool used to capture project-specific characteristics such as milestone dates, source lines of code, number of partners or subcontractors, and consequence of failure.

3.9 IV&V Project

In the context of this SLP, an IV&V Project is any IV&V task being performed by the NASA IV&V Facility for a customer or a NASA development project (depending on context).

3.10 IV&V Services Lead

The IV&V Services Lead is a NASA IV&V Facility civil service employee who provides management, leadership, and guidance for IV&V Services.

3.11 Mission Model

The Mission Model is a matrix identifying IV&V life cycle cost estimates for projects and is available on the NASA IV&V Facility's shared drive. The NASA IV&V Facility uses this model for planning purposes. The New Business Lead is the Mission Model owner.

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3.12 NASA IV&V Facility Filing System (Filing System)

The Filing System is the system in which the individual Project Files are housed.

3.13 New Business Lead

The New Business Lead is a NASA IV&V Facility civil service employee responsible for monitoring the establishment of new NASA missions and assessing the level of IV&V needs for those missions. The New Business Lead is responsible for the Mission Model, which is used as input for the IBD discussions. The New Business Lead works closely with the IV&V Services Lead.

3.14 Planning and Scoping Lead (P&S Lead)

The P&S Lead is a NASA IV&V Facility civil service employee who manages and functions as part of the P&S Team.

3.15 Planning and Scoping Team (P&S Team)

The P&S Team is a group of NASA IV&V Facility civil service employees tasked with the criticality assessment and initial task set recommendations for all ongoing and future projects.

3.16 Project File

A Project File is a file that provides a controlled location to house the quality records defined in Section 8.0, Records, of this SLP for each project startup.

3.17 Project Manager (PM)

The PM is a NASA IV&V Facility civil service employee appointed by Facility Management to perform project management functions.

3.18 Source Selection Authority (SSA)

The SSA is the individual who, after reviewing the findings provided from the proposal evaluation team, makes the determination regarding contractor selection and task order award.

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3.19 Task Order Management System (TOMS)

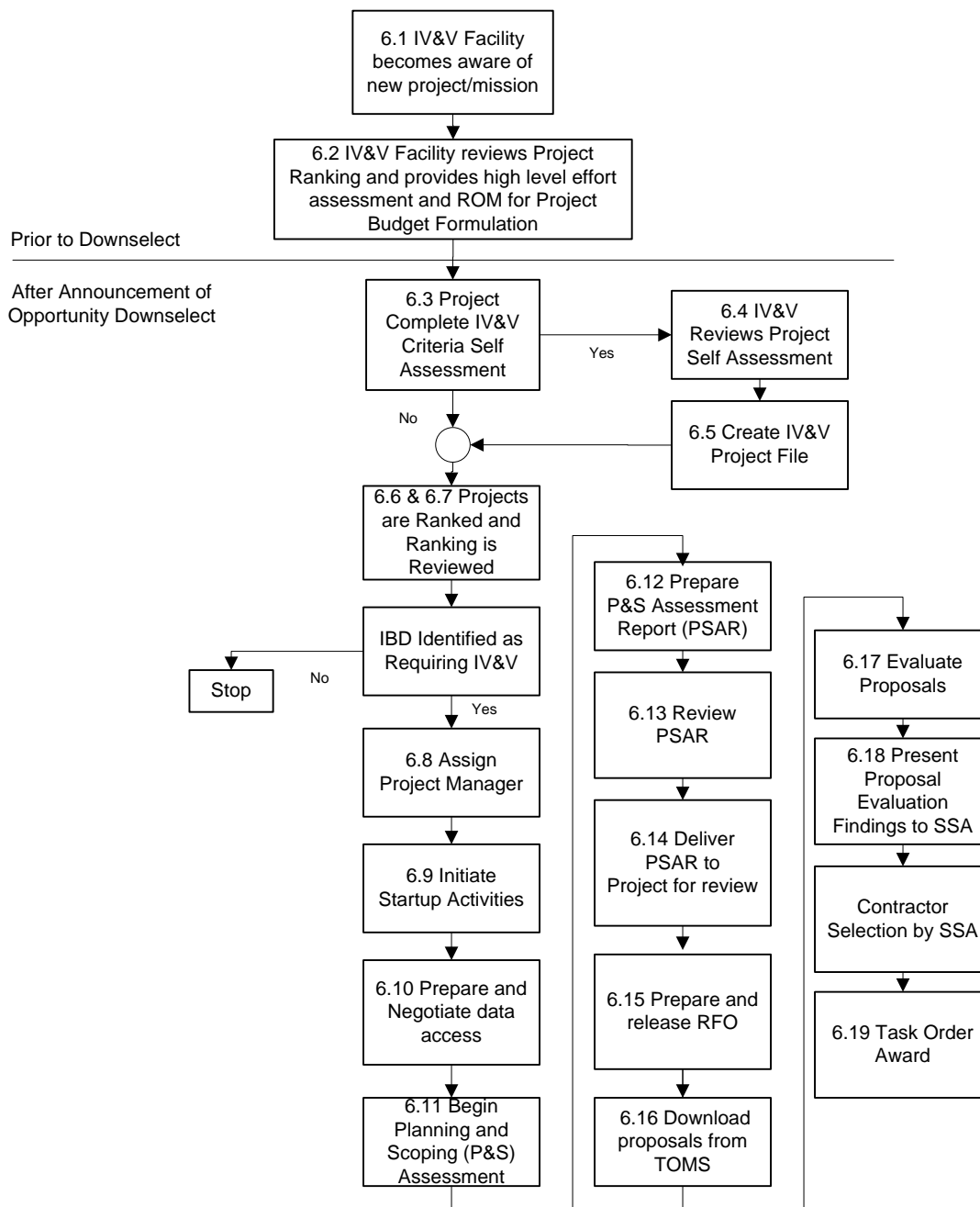
TOMS is a web-based system used to generate and modify task orders with the contractor. This system allows the PMs to initiate/modify task orders, and review and approve vendor proposals.

3.20 Acronyms

AA	Associate Administrator
C/PAR	Corrective/Preventive Action Request
CAR	Corrective Action Request
CFL	Critical Functions List
CIO	Chief Information Officer
CO	Contracting Officer
COTR	Contracting Officer's Technical Representative
DDF	Director's Discretionary Funds
FA	Formal Agreement
FAR	Federal Acquisition Regulation Supplement
FRC	Federal Records Center
G&A	NASA General and Administrative budget alloc. by the IBD
GSFC	Goddard Space Flight Center
IBD	IV&V Board of Directors
IV&V	Independent Verification and Validation
Non-G&A	Funding rec. from other sources (e.g. Project, DDF)
NPD	NASA Policy Directive
NPR	NASA Procedural Requirement
QM	Quality Manual
OSMA	Office of Safety and Mission Assurance
P&S	Planning and Scoping
PAR	Preventive Action Request
PMR	Project Management Review
PSA	Planning and Scoping Assessment
PM	Project Manager
RFO	Request for Offer
PSAR	Planning and Scoping Assessment Report
SAR	Scoping Assessment Report
SEB	Source Evaluation Board
SSA	Source Selection Authority
SLP	System Level Procedure
TOMS	Task Order Management System

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4.0 Flow Chart



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5.0 Responsibilities

5.1 Deputy IV&V Services Lead

The Deputy IV&V Services Lead shall:

- Perform for the IV&V Services as needed
- Review RFO before release

5.2 IV&V Board of Directors (IBD)

The IBD shall:

- Identify customer projects that will receive G&A-funded IV&V
- Rank projects using NASA-wide criteria

5.3 IV&V Services Lead

The IV&V Services Lead shall:

- Assign PMs

5.4 New Business Lead

The New Business Lead shall:

- Track new projects
- Review IV&V Criteria Self Assessment results
- Determine level of IV&V for non-G&A funded projects
- Review project ranking results from the IBD
- Notify IV&V services lead when PM assignment is needed for new projects
- Maintain the Facility Mission Model
- Establish new Project Files in the Filing System

5.5 Planning and Scoping Lead (P&S Lead)

The P&S Lead shall:

- Manage the P&S efforts
- Maintain the Project P&S and transition schedule

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5.6 Planning and Scoping Team (P&S Team)

The P&S Team shall:

- Perform the Planning and Scoping Assessment (PSA)
- Generate the Critical Functions List (CFL)
- Generate the Planning and Scoping Assessment Report (PSAR)
- Work closely with the PM
- Be led by the Process Owner of SLP 9-8, Project Startup

5.7 Project Manager (PM)

The PM shall:

- Initiate Formal Agreement (FA) with Customer Project
- Initiate request for Customer Project data access
- Perform as a member of the P&S Team
- Generate the RFO
- Download proposals from TOMS
- Perform as a member of the Proposal Evaluation Team

5.8 Proposal Evaluation Team

The Proposal Evaluation Team shall:

- Consist of the Contracting Officer (CO), the Contracting Officer's Technical Representative (COTR) (or Alternate COTR), the Proposal Chairperson (also the P&S Lead), the PM, and a member of the P&S Team
- Evaluate each proposal against the RFO criteria
- Generate findings
- Prepare SSA briefing of evaluation findings

5.9 Source Selection Authority (SSA)

The SSA shall:

- Review SSA briefing from Proposal Evaluation Team
- Select contractor for task order award

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6.0 Procedure

This SLP establishes a consistent and documented method of performing project startup at the NASA IV&V Facility.

6.1 NASA IV&V Facility Becomes Aware of New Mission or Project

The NASA IV&V Facility will become aware of new missions or projects in a variety of ways. The NASA IV&V Facility will use the knowledge base of NASA Headquarters and NASA Centers to compile a list of projects with software under development or maintenance governed by NPR 7120.5 or 8719.

Regardless of the method, NASA IV&V Facility awareness of a new Customer Project initiates this startup process and a placeholder in the Mission Model.

6.2 NASA IV&V Facility Review of New Mission or Project

The New Business Lead will review the available information about the new Customer Mission or Project. The New Business Lead will review the new mission placeholder, the announcement of opportunity, and follow the proposal development if applicable. Based on this information, the New Business Lead will create a mission financial profile forecast in the Mission Model and begin tracking the new mission.

6.3 Project Completes IV&V Criteria Self Assessment

For targeted missions, the Customer Project will be asked to complete a new self assessment with the accepted proposal information and defined development approach for mission software. *If this step is not completed, skip to Section 6.6, Project Is Ranked.*

6.4 NASA IV&V Facility Reviews IV&V Criteria Self Assessment Results

The New Business Lead will review the self assessment results and compare it to the project data. The results will then be discussed with the Customer Project to clarify the rationale.

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For non-G&A funded projects, an approach determination will be made regarding the level and type of support either through project request for specific IV&V tasks or through the PSA process. If the level of support is agreed to be “None”, this conclusion will be recorded in the Project File, and this process is complete. If the Facility agrees to provide IV&V support resulting from a request for specific IV&V tasks, a PM is assigned. The IV&V effort is then managed via IVV 09-4, Project Management, and this process is complete.

If the Customer Project desires full life cycle IV&V or the Customer Project is G&A funded, then this process continues.

The self assessment results shall be provided to the Administrative Office to file in the appropriate project file as a quality record per Section 8.0, Records, of this SLP, and in accordance with IVV 16, Control of Quality Records.

6.5 Create Project File

Once a Customer Project has completed and reviewed its self assessment, the New Business Lead shall establish a Project File in the Filing System. The New Business Lead shall provide the full project name and acronym, along with the enterprise code, to the NASA IV&V Facility Administrative Office (Administrative Office) to establish a Project File. The Administrative Office will create the Project File in accordance with IVV 16, Control of Quality Records.

6.6 Project is Ranked

Projects are initially ranked by the Office of the Chief Engineer using - NASA-wide criticality criteria.

6.6.1 Projects are divided into four major classes

- Human Rated (H)
- Robotic (R)
- Instruments (I)
- Information or Data Analysis systems (D).

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6.6.2 Each project is given a score based on the characteristics of the project. Engineering notes can provide mitigations to the score or ranking.

The IBD further sorts the project ranking based upon on-going IV&V support, NASA ranking, and NASA IV&V Facility input.

6.7 NASA IV&V Facility Reviews Project Ranking

The New Business Lead will review the project ranking results.

If a project is non-G&A funded, this activity does not apply.

If a project is G&A funded, then full life cycle IV&V is assumed and this process continues.

6.8 Assign Project Manager for IV&V Projects

For projects requiring IV&V as identified by the IBD, a PM will be assigned by the IV&V Services Lead.

6.9 Initiate Startup Activities

The PM will contact the Customer Project to initiate regular communications and explain the startup process. The PM and the P&S Lead will jointly determine the appropriate time to begin startup activities for life cycle IV&V.

6.10 Negotiate Data Access and Plan Planning and Scoping Assessment

The PM will begin to negotiate an FA with the customer in accordance with IVV 09-4, Project Management. The PM will work with the Customer Project to obtain data (or data access) for the P&S assessment.

6.11 Conduct IV&V Planning and Scoping Assessment

As a general rule, planning and scoping of existing, non-human-rated projects will be completed in ten working days. New projects and human-rated projects will be completed in twenty working days. During this time,

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the P&S Team will perform the criticality analysis and risk assessment utilizing a repeatable process. The PM is responsible for coordinating the startup activities with the Customer Mission or Project PM, including data management activities related to identifying and securing artifacts and other required project data, and identifying and adhering to any privacy and/or security-related requirements associated with this data.

The PM shall take an active role in the P&S assessment by participating fully in the criticality analysis and risk assessment, scope determination discussions, and other IV&V planning activities. In addition, the PM shall identify project-specific risks associated with the startup efforts, and follow-on IV&V efforts as applicable, and report on these risks at appropriate forums (e.g., Project Management Reviews [PMRs]).

6.12 Prepare Planning and Scoping Assessment Report (PSAR)

The P&S Team shall ensure the preparation of a PSAR that includes, but is not limited to, the following content:

- An identification of the Customer Mission/Project success criteria
- A description of the software components or elements and how they support the mission
- For each software component/element
 - An evaluation of the risk
 - The specific rationale for the risk evaluation
 - The recommended IV&V analysis tasks
 - The rationale for recommending the tasks
- The Customer Project development schedule
- Discussion of heritage previous to IV&V activities performed on other missions and software reuse

6.13 Review of PSAR

The PSAR content will be subjected to a NASA IV&V Facility review by the either the IV&V Services Lead or the Deputy IV&V Services Lead to ensure that it is accurate, complete, consistent, and ready for delivery to the Customer Mission or Project PM. After the PSAR review is complete, the PSAR can be submitted to the Customer Mission or Project PM for

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comment/acceptance. The PM shall submit the PSAR for review and approval using the Concurrence Form.

The Facility PM shall submit the completed and signed Concurrence Form to the Administrative Staff to file in the appropriate Project File as a Quality Record per Section 8.0 of this SLP and in accordance with IVV 16. The Facility PM will save an electronic version of the draft Scoping Assessment Report (SAR) on the NASA IV&V Facility shared drive.

6.14 Deliver Planning and Scoping Assessment Report

The PM shall deliver the PSAR to the Customer Mission or Project PM to allow project review. An agreeable amount of time should be given to accommodate questions regarding accuracy, and to clarify any misinterpretation/misunderstandings between the two organizations.

6.15 Prepare and Release RFO

The PM shall generate the RFO following the RFO process documented at N:\COTR Deliverable Matrices\MAC\RFOs\RFO training\ RFO Process 062705.doc and further explained with the presentation at N:\COTR Deliverable Matrices\MAC\RFOs\RFO training\ RFO presentation 062705. The RFO shall be reviewed by at least the IV&V Deputy Services Lead before being released. The RFO will be released via TOMS.

6.16 Download Proposals from TOMS

The PM shall download all proposals received in TOMS and place them in the appropriate project-named file in the folder R:\RFO Proposals. These folders meet the security requirements necessary, as they are only read and write accessible by the designated individuals on the Proposal Evaluation.

6.17 Evaluate Proposals

The Proposal Evaluation Team shall evaluate each proposal against the RFO evaluation criteria following the NASA Source Evaluation Board (SEB) training. The findings will be captured in a briefing prepared for the SSA.

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6.18 Present Proposal Evaluation Findings to SSA and Contractor Selection

The Proposal Evaluation Team Chairperson shall present the team findings to the SSA. No recommendations will be provided. The SSA shall select a contractor for task order award by the end of the day the briefing was held.

6.19 Task Order Award

The CO shall award the task order after SSA selection.

6.20 Control of Nonconforming Product

Because the NASA IV&V Facility produces independent analysis products with which customers may not agree, disagreement with the analysis does not constitute a nonconformance subject to this section of this SLP.

If the NASA IV&V Facility identifies a problem with a product that has already been delivered to the project, the PM shall immediately inform the project of the problem. If the customer identifies a product produced by the NASA IV&V Facility as nonconforming (e.g., an inappropriate format or because it was performed on the wrong customer product), the PM is responsible for identifying the issue and discussing it with the customer. Regardless how the problem has been identified:

- The PM shall complete a Corrective Action Request (CAR) form per IVV 14, Corrective and Preventive Action.
- The PM is responsible for ensuring that the problem is resolved and that the customer is provided a full explanation of events.
- Once the nonconforming product has been corrected, it shall then be subjected to its established verification process once again.
- Once the nonconforming product has been approved and sent to the customer, the PM should request closure of the CAR.

The corrective/preventive action request (C/PAR) process ensures Facility Management is involved and aware that the problem has been resolved and documented.

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7.0 Metrics

The metrics associated with this SLP are H11, H12, and H13 in the NASA IV&V Facility's Metrics Program spreadsheet.

8.0 Records

The following records will be generated and filed either on a NASA IV&V Facility shared network drive, in the PM's file or in the Project File by the Administrative Office in accordance with IVV 16, Control of Quality Records, and in reference to NPR 1441.1, NASA Records Retention Schedule.

Document Name and Identification Number	User Responsible for Record Retention	Retention Requirement	Location
Concurrence Form for associated PSAR Peer Review	PM	Permanent – Retire to FRC when file is closed	Administrative Project File
PSAR Delivered to Customer	PM	Permanent – Retire to FRC when file is closed	Administrative Project File
IV&V Criteria Self Assessment Results	New Business Lead	Permanent – Retire to FRC when file is closed	Administrative Project File